

## RECLOSABLE SHOPPING BAG

## CROSS REFERENCE TO RELATED APPLICATIONS

This application is the US national phase of PCT application PCT/EP2004/002866, filed 19 March 2004, published 21 October 2004 as WO 2004/089772, and claiming the priority of German patent application 20305971.9 itself filed 12 April 2003 whose entire disclosures are herewith incorporated by reference.

## FIELD OF THE INVENTION

The invention relates to a shopping bag made of a thermoplastic synthetic resin with two adjacent side panels welded together at side and bottom edges and having inner faces to which are welded profiled strips of a closure operable by a slider and serving to close a fill mouth.

## STATE OF THE ART

It is generally known to provide a thermoplastic-foil bag with a closure. A bag that has a closure formed by two inter-engageable ribs is known from German 1,950,724. The spaced outer edges of the ribs are formed as reinforcement strips. The engaging other parts of the ribs are formed as undercut hook sections that latch on each other when the ribs are pressed together. The profiles are unitarily formed on the side panels. A slider is also described that engages over the closure and that during closing slides across the mouth of the bag.

US patent 6,290,393 shows a closure for a plastic bag that is also provided with a slider. The slider makes it possible to join the profile strips of the closure or to separate the

profile strips that are formed as interengageable hooks. The closure is a separate element that is fitted to the fill opening of the plastic bag. A problem with such reusable plastic bags is that they are difficult to handle when full and closed.

5               With respect to handling plastic bags, German 2,526,014 describes a plastic bag made of two side panels that are provided adjacent the fill opening with handle holes. The two side panels are welded together at their edges except at the fill opening. To increase the portability of the plastic bag, the handle holes are  
10              provided with reinforcement strips.

              The mounting of reinforcement strips adjacent the grip holes of thermoplastic synthetic-resin shopping bags is described in EP 0,266,670. The shopping bag has hand-hole reinforcements of synthetic-resin foil that are welded in place over an array of  
15              points with a predetermined ratio between welded and unwelded areas. When such shopping bags are filled, stress lines are produced that extend from the longitudinal axis of the shopping bag at an angle to the corners of the floor of the bag. The greatest loads are in the lower regions of the sides of the hand holes.  
20              This load is assumed by the arrayed weld points with the reinforcement strips and the panels of the bag such that the strength of the bag and what it can carry are increased. Such shopping bags are capable of holding a large load, but they can only be closed with great difficulty, in order for example to  
25              transport frozen products or to protect the contents from moisture.

#### OBJECT OF THE INVENTION

It is an object of the invention, the develop a shopping bag that can be produced economically, can carry a considerable load, whose fill opening is easy to close, and which is easy to handle.

#### SUMMARY OF THE INVENTION

These objects are attained in that each side panel is formed below the closure with a hand hole. The invention makes it possible to easily handle and carry a reclosable shopping bag. If items are put in the bag according to the invention, air access to them is reduced and the items are also protected from wetness.

#### BRIEF DESCRIPTION OF THE DRAWING

In the following, two embodiments of the invention are shown and more closely described with reference to the drawing.

FIG. 1 shows a three-dimensional view of a shopping bag according to the invention with a hand hole integrated in the side panels; and

FIG. 2 shows a three-dimension view of a shopping bag according to the invention with welded-on handles extending past a portion of the width of the side panels.

#### EMBODIMENTS OF THE INVENTION

FIG. 1 shows a three-dimensional view of a shopping bag 1 with a closure 2, a slider 3, a hand hole 4, and a reinforcement strip 5 around the hand hole 4. The shopping bag 1 is formed of two side panels 6 and 7 that are joined along longitudinal edges 8 and 9 up to a fill opening 10. The closure 2 is made as a separate item and then welded to the side panels 6 and 7 of the plastic bag during its manufacture. Such closures are known from the prior art

and are formed mainly as profiled strips that can be interengaged by means of the slider 3 and that as a result of their profiles grip each other. The joined profiles can be separated by being bent apart at any location and then pulled away from each other.

5 To reclose the bag 1 the slider 3 is again drawn along the profiled strips so they grip each other. The hand-hole reinforcement 5 is welded to the inside of each of the side panels 6 and 7 and thus increases the load the bag 1 can carry. The hand-hole reinforcements 5 are each made as a separate part and are welded to the side  
10 panels 6 and 7 underneath the fill opening 10 offset from the closure 2 and welds of the side panels 6 and 7 before the hand holes 4 are punched out.

The hand holes 4 can be of shapes different from those of the respective reinforcements 5. It is possible to punch a  
15 throughgoing hole in the side panels 6 and 7 so that the side panels 6 and 7 have an opening here or it is possible according to the invention to punch in the side panels 6 and 7 a C-shaped slit as hand hole 4. With the C-shaped hand hole 4 the C is cross-wise to the fill opening and the opening of the C is turned toward the  
20 fill opening 10. It is possible to hold the shopping bag 1 by means of the hand hole 4 and with a C-shaped hand-hole the interior of the bag 1 is protected against moisture and air.

Regardless of the shape of the hand hole 4 and the type of reinforcement 5, the side panels 6 and 7 can be made of an  
25 insulating foil. Insulating foils are generally known, for example vapor-coated with aluminum or made of aluminum laminated to a plastic foil. It is also naturally possible to use other insu-

lating thermoplastic foils. The hand-hole reinforcement 5 can be used in every embodiment.

In order to put something in the shopping bag 1, the fill opening 10 is spread and the item is put into the bag 1, then the slider 3 is moved from one edge to the other of the bag, that is across the entire width of the bag. The profiled strips are now interlocked and the fill region 10 of the bag 1 is closed. The bag 1 can now be gripped through the hole 4 and easily handled and carried. The contained goods or product is protected against air, radiation, moisture, etc. Only in the region of the hand hole 4 is the bag 1 still open. This opening however has with respect to air entry a minor roll as the opening is relatively small and is closed by the person carrying it. Even in the case when the person carrying the bag 1 does not use the hand holes 4, only very limited moisture, for example, can get in via the hand holes 4 since the two hand holes 4 are pulled together by the closure. With an appropriate formation of the hand holes 4, e.g. C-shaped, external influences can be made even smaller.

A further embodiment of the invention is shown in FIG. 2. The shopping bag 11 is formed of two side panels 12 and 13 welded together along their longitudinal edges and a closure 14 is welded at the fill region of the bag and also extends the full width of the shopping bag 11. In this embodiment the handles 15 and 16 are separate patches or parts welded externally to the side panels 12 and 13. In order to facilitate the welding of the closure 14 to the side panels 12 and 13, the handles 15 and 16 are welded to the side panels 12 and 13 such that they extend after welding toward a

floor 17 of the bag 11. This orientation of the handles 15 and 16 is shown at dashed lines in FIG. 2. After filling the bag 11 and closing it via the slider 18, the handles 15 and 16 can be folded up from the side panels 12 and 13 to extend past the closure 14 and be used as a handle 15.

The handles 15 and 16 can either be welded onto the side panels 12 and 13 or separately mounted directly below the weld of the closure 14 or can be welded to the side panels 12 and 13 in one step with the closure 14. The handles 15 and 16 either extend only over a portion of the width of the bag and are centrally arranged, or the plastic strips in which the hand-holes 19 are punched extend over the entire width of the bag 1. The hand holes 19 in the handles 15 and 16 can as in the first embodiment be punched out or C-shaped. It is also possible to make the side panels 12 and 13 of insulating foils.

Such a shopping bag 11 has the advantage that there is no hand hole in the side panels 12 and 13 and that the closure 14 serves as reinforcement, with the tension from the handles 15 and 16 being transmitted to the closure 14 and from it uniformly over the entire width of the bag 11.